Arch Chemicals, Inc.

MATERIAL SAFETY DATA

FOR ANY EMERGENCY, CALL 24 HOURS/7 DAYS:	**1-800-654-6911**
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC®:	1-800-424-9300
FOR ALL MSDS QUESTIONS & REQUESTS, CALL MSDS CONTROL:	1-800-511-MSDS

PRODUCT NAME: HTH® STABILIZER AND CONDITIONER

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

REVISION DATE: 12-02-2002 SUPERCEDES: 12-17-2001
MSDS NO: 00011-0059 - 61309

MANUFACTURER: **Arch Chemicals, Inc. 501 Merritt 7 PO Box 5204 Norwalk, CT 06856-5204**

SYNONYMS: Isocyanuric acid, Cyanuric acid
CHEMICAL FAMILY: Isocyanurate
FORMULA: (HCNO)\3
DESCRIPTION: Chlorine stabilizer for swimming pool use.
OSHA HAZARD CLASSIFICATION: Skin and eye irritant

SECTION 2 COMPONENT DATA

PRODUCT COMPOSITION
CAS or CHEMICAL NAME: Cyanuric acid
CAS NUMBER: 108-80-5
PERCENTAGE RANGE: 90-99%
HAZARDOUS PER 29 CFR 1910.1200: Yes
EXPOSURE STANDARDS: None Established

CAS or CHEMICAL NAME: Sulfuric acid
CAS NUMBER: 7664-93-9
PERCENTAGE RANGE: 0-1%
HAZARDOUS PER 29 CFR 1910.1200: Yes
EXPOSURE STANDARDS:

	OSHA(PEL)		ACGIH(TLV)	
	ppm	mg/cubic-meter	ppm	mg/cubic-meter
TWA:		1.0		1.0
CEILING:	None		None	
STEL:	None			3.0

CAS or CHEMICAL NAME: Water
CAS NUMBER: 7732-18-5
PERCENTAGE RANGE: 0-10%
HAZARDOUS PER 29 CFR 1910.1200: No
EXPOSURE STANDARDS: None Established

CAS or CHEMICAL NAME: Ammelide
CAS NUMBER: 645-93-2
PERCENTAGE RANGE: 0-0.5%

HAZARDOUS PER 29 CFR 1910.1200: No
EXPOSURE STANDARDS: None Established

CAS or CHEMICAL NAME: Ammeline
CAS NUMBER: 645-92-1
PERCENTAGE RANGE: 0-0.5%
HAZARDOUS PER 29 CFR 1910.1200: No
EXPOSURE STANDARDS: None Established

SECTION 3 PRECAUTIONS FOR SAFE HANDLING AND STORAGE

DO NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN, EYES, AND CLOTHING. UPON CONTACT WITH SKIN OR EYES, WASH OFF WITH WATER.
STORAGE CONDITIONS: Store in a cool, dry area.
DO NOT STORE AT TEMPERATURES ABOVE: 60 Deg.C (140 Deg.F)
PRODUCT STABILITY AND COMPATIBILITY
SHELF LIFE LIMITATIONS: Unlimited
INCOMPATIBLE MATERIALS FOR PACKAGING: None known
INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT: None known

SECTION 4 PHYSICAL DATA

APPEARANCE: White granules or powder
MELTING POINT: Sublimes at 320-330 Deg.C (608-626 Deg.F)
BOILING POINT: Not Applicable
DECOMPOSITION TEMPERATURE: Not Applicable
SPECIFIC GRAVITY: 2.5
BULK DENSITY: 0.79-0.85(g/cc)
pH: 3.8-4.0
VAPOR PRESSURE @ 25 DEG.C: Not Applicable
SOLUBILITY IN WATER: 0.27% @ 25 Deg.C
VOLATILES, PERCENT BY VOLUME: Not Applicable
EVAPORATION RATE: Not Applicable
VAPOR DENSITY: Not Applicable
MOLECULAR WEIGHT: 129.08
ODOR: None
COEFFICIENT OF OIL/WATER DISTRIBUTION: Not Applicable

SECTION 5 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

PERSONAL PROTECTION FOR ROUTINE USE OF PRODUCT:
RESPIRATORY PROTECTION: Respiratory protection not normally needed. If dusting occurs, wear a NIOSH approved dust respirator.
VENTILATION: Use local exhaust ventilation to minimize dust levels.
SKIN AND EYE PROTECTIVE EQUIPMENT: Wear gloves and chemical goggles to avoid skin and eye contact.

EQUIPMENT SPECIFICATIONS:
RESPIRATOR TYPE: Not normally needed
GLOVE TYPE: Neoprene or chemically impermeable

SECTION 6 FIRE AND EXPLOSION HAZARD INFORMATION

FLAMMABILITY DATA:
FLAMMABLE: No
COMBUSTIBLE: No
PYROPHORIC: No
FLASH POINT: Not Applicable
AUTOIGNITION TEMPERATURE: Not Applicable
FLAMMABLE LIMITS AT NORMAL ATMOSPHERIC TEMPERATURE AND PRESSURE (PERCENT VOLUME IN AIR): Not Applicable

NFPA RATINGS: Not Established

HMIS RATINGS:
Health: 1
Flammability: 0
Reactivity: 0

EXTINGUISHING MEDIA: Not Applicable
FIRE FIGHTING TECHNIQUES AND COMMENTS: Use water to cool containers exposed to fire. Use extinguishing agent suitable for surrounding material.

SECTION 7 REACTIVITY INFORMATION

CONDITIONS UNDER WHICH THIS PRODUCT MAY BE UNSTABLE:
TEMPERATURES ABOVE: 330 Deg.C (626 Deg.F)
MECHANICAL SHOCK OR IMPACT: No
ELECTRICAL (STATIC) DISCHARGE: No
HAZARDOUS POLYMERIZATION: Will Not Occur
INCOMPATIBLE MATERIALS: Oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, Carbon dioxide, Oxides of nitrogen, and cyanic acid.

SUMMARY OF REACTIVITY:
OXIDIZER: No
PYROPHORIC: No
ORGANIC PEROXIDE: No
WATER REACTIVE: No

SECTION 8 FIRST AID

EYES: Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Call a physician at once.

SKIN: Immediately flush with water for 15 minutes. Wash the contaminated skin with soap and water. If irritation develops, call a physician. If clothing comes in contact with the product, the clothing should be removed immediately and it should be laundered before re-use.

INGESTION: Immediately drink water to dilute. Consult a physician.

INHALATION: If person experiences nausea, headache or dizziness, person should stop work immediately and move to fresh air until these symptoms disappear. If breathing is difficult, administer oxygen, keep the person warm and at rest. Call a physician. In the event that an individual inhales enough vapor to lose consciousness, person should be moved to fresh air at once and a physician should be called immediately. If breathing has stopped, artificial respiration should be given immediately. In all cases, ensure adequate ventilation and provide respiratory protection before the person returns to work.

SECTION 9 TOXICOLOGY AND HEALTH INFORMATION

ROUTES OF ABSORPTION
Ingestion, skin and eye contact

WARNING STATEMENTS AND WARNING PROPERTIES
DO NOT TAKE INTERNALLY. MAY CAUSE MILD SKIN AND EYE IRRITATION. INHALATION OF DUST MAY CAUSE MILD MUCOUS MEMBRANE AND RESPIRATORY IRRITATION.

HUMAN THRESHOLD RESPONSE DATA
ODOR THRESHOLD: No Data
IRRITATION THRESHOLD: No Data
IMMEDIATELY DANGEROUS TO LIFE OR HEALTH: The IDLH concentration has not been established for this product.

SIGNS, SYMPTOMS, AND EFFECTS OF EXPOSURE

INHALATION
Acute:
No significant adverse effects to health would be expected to occur from inhalation with normal use of this product. However, if dust is created and inhaled, inhalation may cause mild irritation to the throat, mucous membranes and upper respiratory tract.
CHRONIC:
None known or reported

SKIN
ACUTE:
Skin contact may cause a mild irritation consisting of transient redness. This irritant effect would not be expected to result in permanent damage.
CHRONIC:
There are no known or reported effects from chronic exposure except for effects similar to those experienced from single exposure.

EYE
Contact with the eyes may cause a mild irritation consisting of redness, swelling and mucous membrane discharge to the conjunctiva. No corneal damage or visual impairment would be expected to occur.

INGESTION
ACUTE:
Ingestion may cause gastrointestinal discomfort with any or all of the following symptoms: nausea, vomiting, lethargy or diarrhea.
CHRONIC:
There are no known or reported effects from chronic exposure except for effects similar to those experienced from single exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
None known or reported.

INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY
None known or reported

ANIMAL TOXICOLOGY
ACUTE TOXICITY:
Inhalation LC 50: No Data
Dermal LD 50: > 2 g/kg (rabbit)
Oral LD 50: > 5 g/kg (rat)
Irritation: May cause mild eye and skin irritation

ACUTE TARGET ORGAN TOXICITY:
No organs known to be damaged from exposure to this product. May cause mild skin and eye irritation.

CHRONIC TARGET ORGAN TOXICITY:
Based on data from toxicological investigations, cyanuric acid does not result in direct target organ damage. Damage to the kidneys and bladder has been observed in rats when these animals are provided a saturated solution (5375 ppm) of cyanuric acid for their drinking

water. During excretion of high amounts by the kidney, stones of cyanuric acid can form (calculi) resulting in mechanical damage which is secondary to stone formation.
This effect would not pose a risk to humans during manufacturing, use as a disinfectant in swimming pools, and even consumption of dilute solutions (1-10 ppm) of cyanuric acid. Cyanuric acid is excreted unchanged rapidly via the kidneys. It lacks the potential to bioaccumulate in the body.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY:
There are no known or reported effects on reproductive function or fetal development from exposure to this product.

Monosodium cyanurate (the sodium salt of cyanuric acid) has been tested by oral gavage in pregnant rats and rabbits. No teratogenic effects were seen in the offspring of either species.

Sulfuric acid aerosol (95.7% purity) was tested in pregnant mice and rabbits exposed to concentrations of 0, 5 and 20 mg/cubic meter by inhalation on gestational days 6-15 and 6-18, respectively. No reproductive or developmental effects were seen in either species at any of the exposure concentrations utilized.

CARCINOGENICITY:
This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA.

Laboratory toxicological studies in rats and mice (lifetime exposure) indicate that cyanuric acid is not carcinogenic.

Sulfuric acid is not known or reported to be carcinogenic by any reference source including: IARC, OSHA, NTP, or EPA. IARC evaluated several epidemiology studies where individuals in a variety of industries had been exposed to a mixture of strong inorganic acid mists and concluded that there is sufficient evidence that occupational exposure to a mixture of strong inorganic acid mists is carcinogenic to humans. Because cancer has not been observed in animals when they are exposed only to sulfuric acid mist, exposure to sulfuric acid by itself was not determined to be carcinogenic to humans.

MUTAGENICITY:
This product is not known or reported to be mutagenic.

Cyanuric acid was determined to be non-mutagenic in the Ames assay, both with and without metabolic activation.

Monosodium cyanurate (the sodium salt of cyanuric acid) has been tested in a battery of mutagenicity/genotoxicity assays and no mutagenic or genotoxic activity was detected in any of these assays.

AQUATIC TOXICITY:
Cyanuric acid:
Bluegill sunfish: 96 hr. LC50: > 2,100 mg/l
Fathead minnow: 96 hr. LC50: > 2,100 mg/l
Rainbow trout: 96 hr. LC50: > 2,100 mg/l
Daphnia magna: 48 hr. LC50: > 1,000 mg/l
Algae: 96 hr. EC50: 655 mg/l

Toxicity to wildlife:
Monosodium cyanurate (sodium salt of cyanuric acid):
Mallard duck: 8 day dietary LC50: > 10,000 ppm

Bobwhite quail: 8 day dietary LC50: > 10,000 ppm

SECTION 10 TRANSPORTATION INFORMATION

THIS MATERIAL IS NOT REGULATED AS A DOT HAZARDOUS MATERIAL.

SECTION 11 SPILL AND LEAKAGE PROCEDURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-424-9300.

REPORTABLE QUANTITY: None Established (Per 40 CFR 302.4)

SPILL MITIGATION PROCEDURES:

Air Release - Not Applicable

Water Release - this material is heavier than water. This material is very slightly soluble in water.

Land Spill - Keep spill materials dry and free of all foreign matter. Containerize in a clean, dry container.
SPILL RESIDUES: Dispose of per guidelines under Section XII, WASTE DISPOSAL.

PERSONAL PROTECTION FOR EMERGENCY SPILL AND FIRE-FIGHTING SITUATIONS: No extra protection required beyond that listed in Section V (in case of fire, use normal fire fighting equipment), including a NIOSH approved self-contained breathing apparatus (SCBA).

SECTION 12 WASTE DISPOSAL

If this product becomes a waste, it DOES NOT meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D.

As a nonhazardous solid waste it should be disposed of in accordance with local, state, and federal regulations by disposal in a secure chemical landfill.
CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

SECTION 13 ADDITIONAL REGULATORY STATUS INFORMATION

TOXIC SUBSTANCES CONTROL ACT: This substance is listed on the Toxic Substances Control Act inventory.

SUPERFUND AMENDMENT AND REAUTHORIZATION ACT TITLE 3:

HAZARD CATEGORIES, PER 40 CFR 370.2:
HEALTH: Immediate (Acute)
PHYSICAL: None

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APP. A:

EXTREMELY HAZARDOUS SUBSTANCES - THRESHOLD PLANNING QUANTITY:
None Established

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45:

This mixture or tradename product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title 3 of the Superfund Ammendments and Reauthorization Act of 1986 and 40 CFR 372. (See Section 2 for Composition)
CHEMICALS LISTED ARE: Sulfuric Acid

SECTION 14 ADDITIONAL INFORMATION

MSDS REVISION STATUS: Revision to Exposure Standards (Section 02), Personal Protective Equipment (Sections 05 & 11), HMIS Ratings (Section 06) and Aquatic Toxicity (Section09)

SECTION 15 MAJOR REFERENCES

1. Lusby, Andrea, F., et al., Variation in Mutagenicity of s-Triazine Compounds Tested on Four Salmonella Strains. Environmental Mutagenesis, Vol. 1, No. 3, pp. 287-290, 1979.
2. Canelli, Edmondo, Chemical, Bacteriological and Toxicological Properties of Cyanuric Acid and Chlorinated Isocyanurates as Applied to Swimming Pool Disinfection. American Journal of Public Health, Vol. 64, No. 2, pp. 155-162, February 1974.
3. Acute Toxicity of Cyanuric Acid to the Water Flea (Daphnia Magna). EG and G, Bionomics Aquatic Toxicology Laboratory, Wareham, MA. Study # ICG/T-78-076, October 1977.
4. Report to Monsanto Company, Four Day Static Aquatic Toxicity Studies with Monosodium Cyanurate, Lot #P-231291 in Rainbow Trout and Blue Gils. Industrial Bio-Test Laboratories, Inc., Northbrook, IL. BTL #75-36, IBT #621-07227. September 5, 1975

Additional references are available upon request.

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